SERVICE MANUAL

FISHER

AUTOMATIC DIGITAL COMPACT DISC CHANGER

DAC-915

(EUROPE)

137 344 40

SPECIFICATIONS

System ..... Compact disc digital audio system

AUDIO CHARACTERISTICS

Frequency Response ..... 20 Hz – 20 kHz
Harmonic Distortion ..... Less than 0.07 % (1 kHz)
S/N Ratio ..... More than 90 dB
Wow and Flutter ..... Below measurable limits
Channel Separation ..... More than 80 dB (1 kHz)

FUNCTIONS

Disc Selection ..... With DISC NUMBER (1 ~ 5) buttons
Track Selection ..... With F-FWD/F-BACK buttons
Program Selection ..... With DISC NUMBER (1 ~ 5), or F-FWD/F-BACK buttons
Program Functions ..... 32 selections
Program Reset ..... Press CLEAR button
Checking Program ..... With CHECK button (in STOP mode)
Intro Scan ..... 10 sec.
Scanning ..... 2 speed fast-forward/back with sound, 2 speed search in PAUSE mode
Random Disc Play ..... Press RANDOM PLAY button
Total Disc Time Display ..... Press DISPLAY button once
Remaining Disc Time Display ..... Press DISPLAY button twice
Repeat ..... All tracks, all programed tracks

DIGITAL SIGNAL PROCESSING

Optical Pickup ..... 3-beam laser
Error Correction ..... CIRC
Sampling Frequency ..... 44.1 kHz
D/A Conversion ..... 16-bit linear
Filter ..... Digital Filter + (4-pole LC filter)

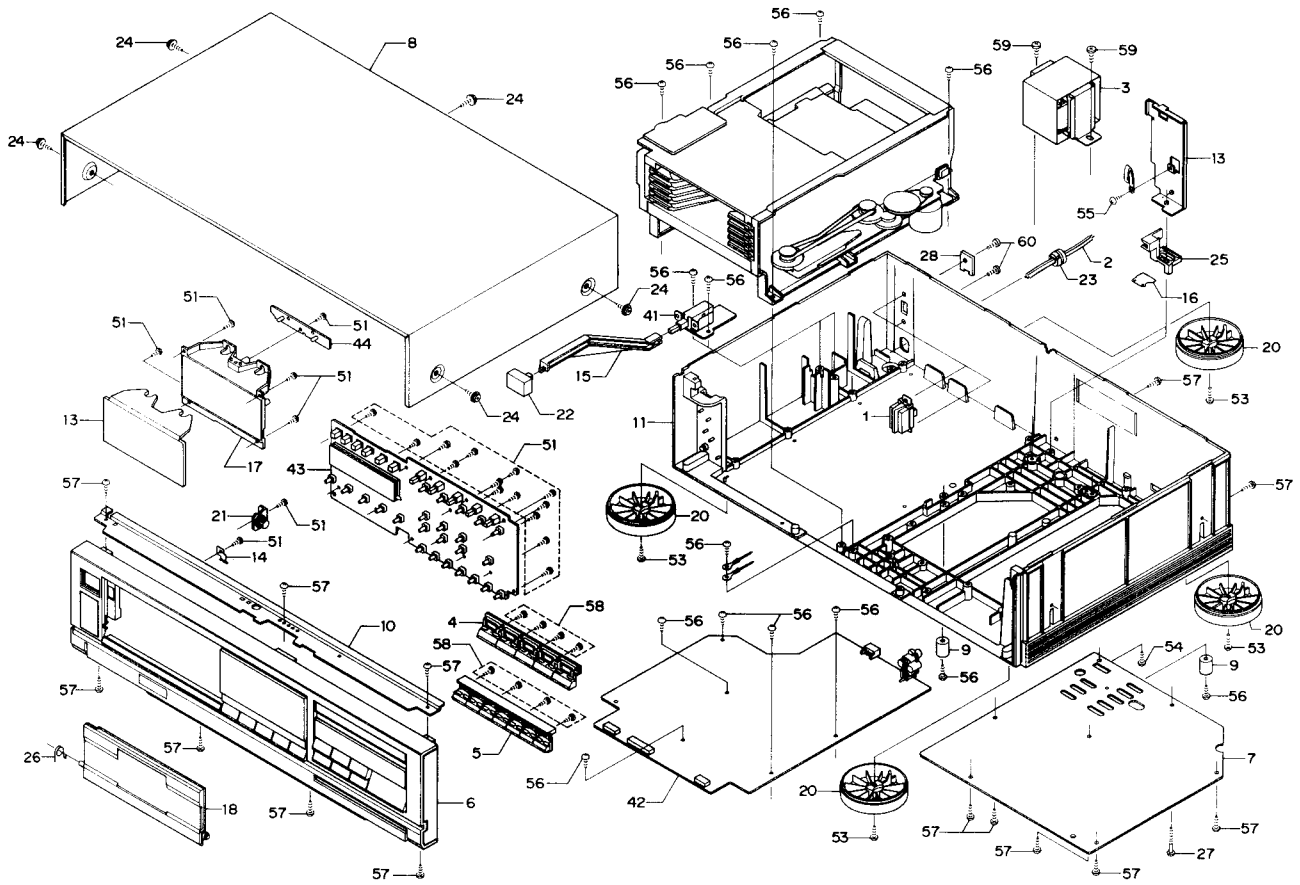
GENERAL

Power Requirements ..... AC 110/220V (50 Hz) 20 Watts
Dimensions (WxHxD) ..... 440 X 122 X 288 mm
Weight (approx.) ..... 4.8 kg

– Specifications and design are subject to change without notice. –

REFERENCE No. WM-570264

CABINET EXPLODED VIEW



CABINET PARTS LIST

Ref. No.	Part No.	Description	Q'ty
PACKAGE			
	620 191 1886	Individual Carton	1
	620 185 6996	Pad Right	1
	620 185 7009	Pad Left	1
	620 059 6596	Patching Sheet	1
	620 148 8012	Sheet Polyethylene	1
	620 152 7452	Serial No. Sheet	2
ACCESSORIES			
	620 017 7955	Connector 4P Assy	1
	620 037 3500	RCA Cord 1000mm Black	1
	620 057 8783	Bag Fan	1
	620 150 8567	Notes	1
	620 152 2624	Certificate Card	1
	620 152 7452	Serial No. Sheet	1
	620 191 3330	Explanatory Booklet	1
CABINET			
	620 017 5739	Connector 1P Assy	1
	620 020 9663	Connector 1P Assy	1
	620 017 3780	Connector 6P Assy [CN6]	1
	620 017 4961	Connector 2P Assy [CN7]	1
	620 017 4442	Connector 4P Assy [CN8]	1
	620 189 3809	Connector 5P Assy [CN9]	1
	620 189 3816	Connector 6P Assy [CN10]	1

Ref. No.	Part No.	Description	Q'ty
	620 191 1862	Name Plate (Rating)	1
	620 061 2340	Notes (Laser)	1
	620 061 2401	Notes (Laser)	1
	620 061 2418	Notes (Laser)	1
	620 125 8110	Lug	1
	620 125 8424	Wire Band	8
	620 152 7452	Serial No. Sheet	1
1	⚠ 620 014 9150	Switch Slide 3P (Power Selector)	1
2	⚠ 620 023 7550	Power Cord	1
3	⚠ 620 191 9486	Power Trans	1
4	620 184 8298	Knob Disc No. Assy	1
5	620 184 8304	Knob Function Assy	1
6	620 192 1632	Escutcheon Dial Assy	1
7	620 039 7469	Plate Bottom	1
8	620 045 4728	Cover	1
9	620 184 8410	Leg Trans	2
10	620 048 4367	Angle Reinforce	1
11	620 048 7351	Chassis Main	1
12	620 050 1576	Metal Mount Cover	1
13	620 184 8427	Filter (Index)	1
14	620 051 0769	Metal Mount Shaft	1
15	620 184 8434	Shaft	1
16	620 064 8608	Spring Plate	1
17	620 184 8533	Mount Screen Assy	1
18	620 184 8557	Lid Disc Assy	1

CABINET PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
20	620 185 2141	Leg Decorate Assy	4
21	620 083 1925	Gear Eject Assy	1
22	620 186 4014	Knob (Power)	1
23	620 053 2129	Bushing (Power Cord)	1
24	620 122 9738	Screw Bind HD. +M3.0X8	5
25	620 131 9330	Lever Lock	1
26	620 137 9181	Spring Door	1
27	620 163 8134	+BRTS-BM 3.0X25	1
28	620 055 1571	Plate Pad Switch	1
41	620 192 6484	Power P.C.B. Assy	1
42	620 192 7252	Main P.C.B. Assy	1
43	620 183 3713	Control P.C.B. Assy	1
44	620 187 9995	Lamp-2 P.C.B. Assy	1
51	411 020 5508	SCR S-TPG BRZ 2.6X6	21
52	411 020 5904	SCR S-TPG BRZ 3X10	2
53	411 020 6208	SCR S-TPG BRZ 3X12	4
54	411 020 6406	SCR S-TPG BRZ 3X12	1
55	411 020 7700	SCR S-TPG BRZ 3X6	1
56	411 020 8004	SCR S-TPG BRZ 3X8	15
57	411 099 9803	SCR S-TPG BRZ 3X8	15
58	411 021 0809	SCR S-TPG BIN 2X6	8
59	411 006 2804	SCR TPG BIN 4X10	2
60	411 002 9104	SCR PAN 3X8	2

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

SAFETY INTERLOCK

The Compact Disc Changer reads the disc signal by detecting the laser beam. It must be avoided for the human body to directly receive the beam. Especialy human eyes are badly affected by the beam. Therefore, the unit is equipped with an interlock to prevent the unnecessary laser outputs.

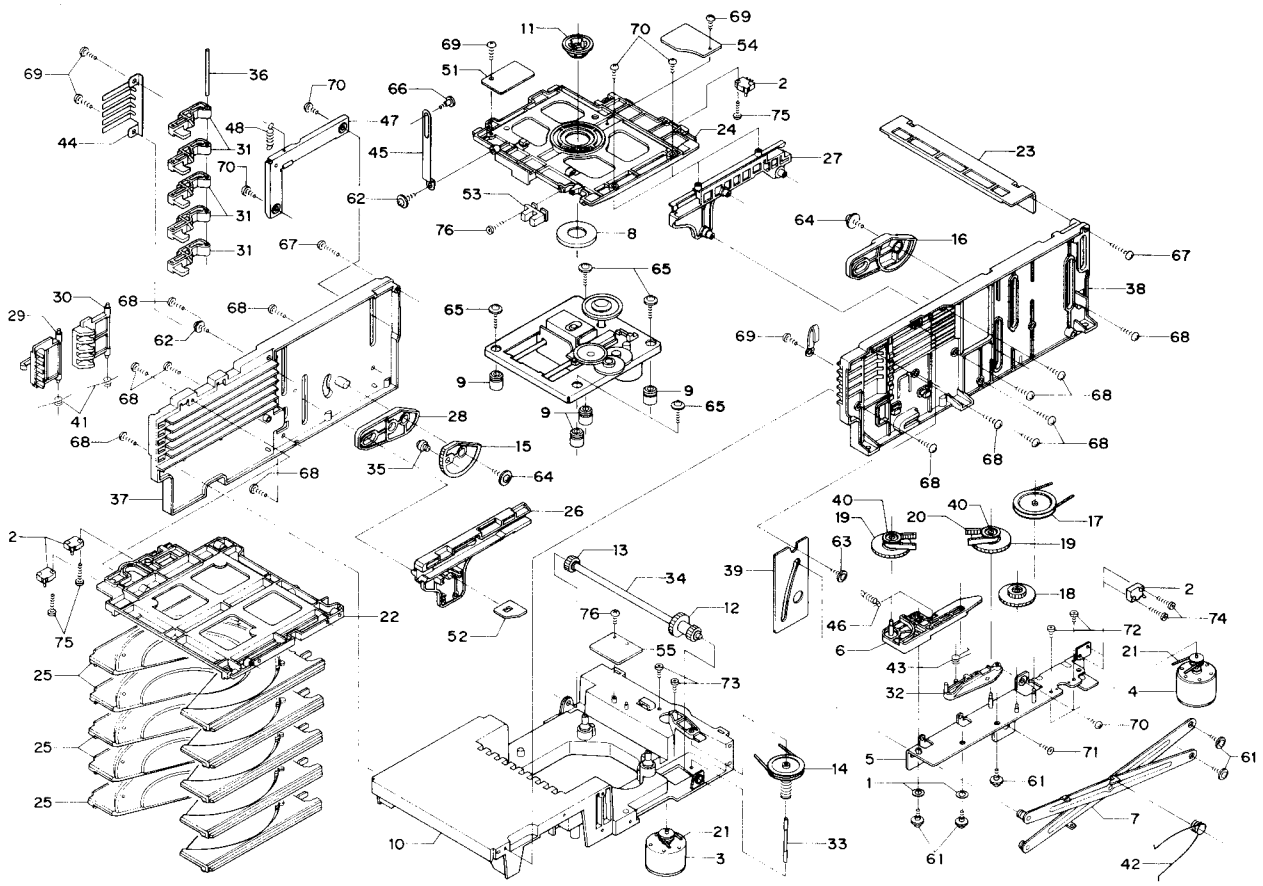
The laser outputs are controled by the injection or cutoff of the constant voltage source to the laser diode with Pin 16 of IC 901 (μPD75206G). When Pin 16 is in "L" (Low) level, the laser emits the beam. When Pin 16 is in "H" (High) level, the laser does not emit the beam.
Pin 16 is set in "H" level when the unit is loaded with the disc and it reads the index signals or when the unit is set in the play mode after that. When the unit reads the index signals and the following two conditions are met, the laser emits the beam.

1) When the Loading Limit Switch is set in "ON". (The disc is set to the turntable.)
2) The pickup is located at the area of the minimum internal circumference.

After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

1. When the PLAY button is pressed.
2. When the PLAY indicator is ON.

CD INDEX MECHANISM EXPLODED VIEW



CD INDEX MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
CD INDEX MECHANISM			
	620 114 9104	Sheet	2
	620 125 8110	Lug	1
	620 125 8424	Wire Band	8
1	620 125 6673	Washer 4.7X9X0.13	2
2	620 016 9363	Lever Switch (Open/Close) [SW1]	1
2	620 016 9363	Lever Switch (Store Point) [SW2]	1
2	620 016 9363	Lever Switch (Loading Limit) [SW3]	1
2	620 016 9363	Lever Switch (Playback Point) [SW4]	1
3	620 030 4108	Motor (Index) [M3]	1
4	620 030 4115	Motor Load (Load) [M4]	1
5	620 084 2501	Slide Plate Assy	1
6	620 085 0896	Lever Index Assy	1
7	620 085 3385	Arm Index Assy	1
8	620 085 6553	Magnet Assy	1
9	620 124 3376	Cushion Rubber	4
10	620 117 1204	Chassis (Load)	1
11	620 119 1530	Holder Disc	1
12	620 127 8514	Gear Wormwheel	1
13	620 127 8521	Gear Index	1
14	620 127 8538	Gear Worm	1
15	620 127 8545	Gear Cam Left	1
16	620 127 8552	Gear Cam Right	1
17	620 127 8569	Gear Pulley	1
18	620 127 8576	Gear Load	1
19	620 127 8583	Gear Pinion	2
20	620 128 3600	Belt (Timing)	1
21	620 128 6540	Belt	2
22	620 129 5948	Support Front	1
23	620 129 5955	Support Rear	1

Ref. No.	Part No.	Description	Q'ty
24	620 129 5962	Flap Disc Cramp	1
25	620 185 9539	Tray	5
26	620 130 6736	Slide Left	1
27	620 130 6743	Slide Right	1
28	620 131 9262	Lever Cam Left	1
29	620 131 9279	Lever Eject	1
30	620 131 9286	Lever Stop	1
31	620 131 9293	Lever Rock	5
32	620 131 9309	Lever Adjust	1
33	620 133 3572	Shaft Gear Worm	1
34	620 133 3589	Shaft Index	1
35	620 133 3596	Pin Adjust	1
36	620 133 3602	Shaft Lever Rock	1
37	620 136 0684	Guide Left	1
38	620 136 0691	Guide Right	1
39	620 136 0707	Guide Plate	1
40	620 136 5887	Cap Gear Pinion	2
41	620 137 9105	Spring Lever Stop	2
42	620 137 9112	Spring Arm Index	1
43	620 137 9129	Spring Lever Adjust	1
44	620 138 6394	Spring Lever Rock	1
45	620 138 6400	Spring Plate	1
46	620 139 1091	Spring Lever Index	1
47	620 130 7122	Slide Plate Left	1
48	620 139 1367	Spring Slide PL Left	1
51	620 079 3001	LED P.C.B. Assy	1
52	620 079 3018	Photo Transistor P.C.B. Assy	1
53	620 079 3025	Photo Sensor P.C.B. Assy	1
54	620 187 7977	LED 8cm P.C B. Assy	1

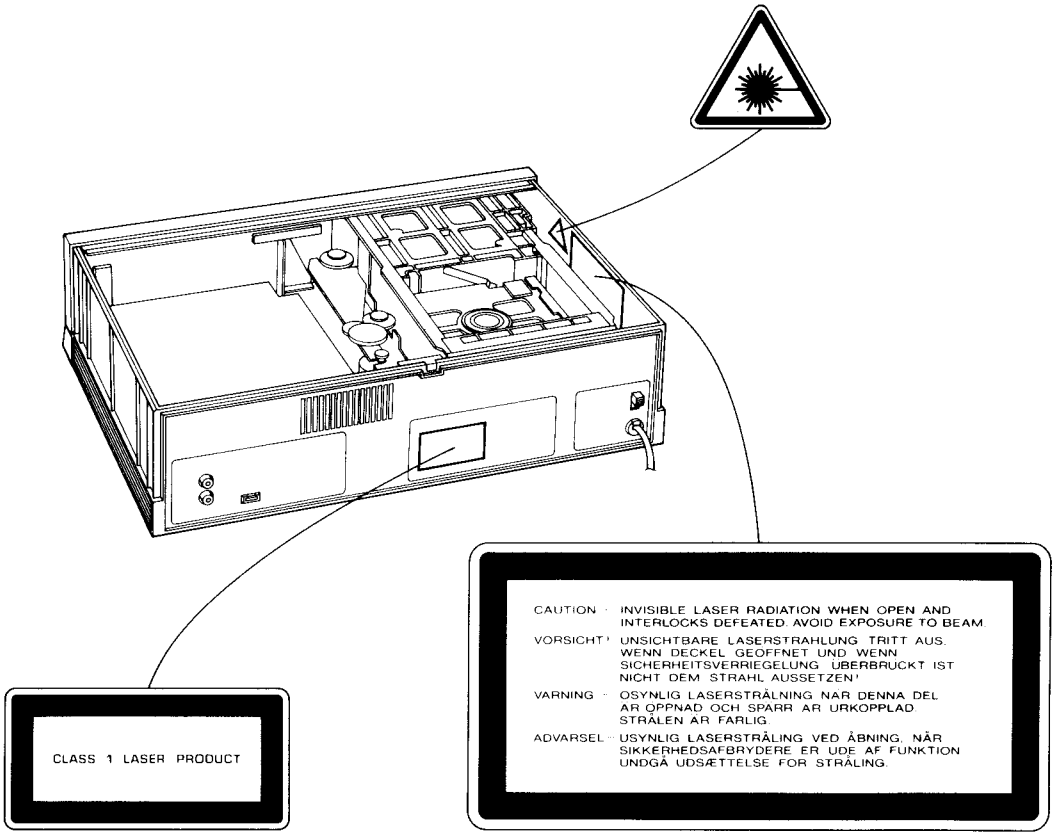
CD INDEX PARTS LIST(Continued)

Ref. No.	Part No.	Description	Q'ty
55	620 187 7984	Sensor 8cm P.C.B. Assy	1
61	620 122 6249	Screw	5
62	620 122 6324	Screw Washer	2
63	620 051 4279	Screw	1
64	620 051 4316	Screw 3X10	2
65	620 123 1021	Screw, Braz. Hd. Tapp.-B, +M2.6X14	4
66	620 122 8397	Screw	1
67	411 020 7007	SCR S-TPG BRZ 3X20	2
68	411 020 5904	SCR S-TPG BRZ 3X10	13
69	411 020 7700	SCR S-TPG BRZ 3X6	6
70	411 020 5508	SCR S-TPG BRZ 2.6X6	5
71	411 022 1904	SCR S-TPG FLT 2.6X6	1
72	411 031 0103	SCR BIN 2.6X3	2
73	411 031 0905	SCR BIN 2.6X4	2
74	411 030 7707	SCR BIN 2X8	2
75	411 063 7309	SCR TPG BIN 2X10	3
76	411 063 8504	SCR TPG BIN 2X8	1

NOTES:

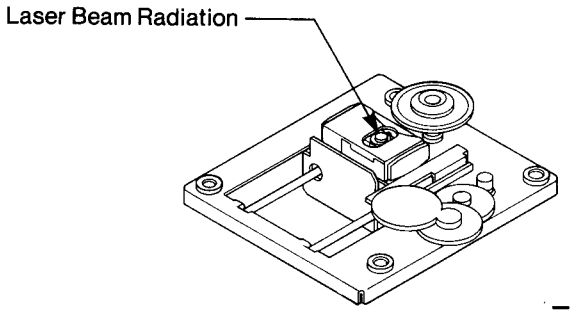
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

SAFETY CERTIFICATION


CLASS 1 LASER PRODUCT
CAUTION - INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
VORSICHT - UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEOFFNET UND WENN SICHERHEITSVERRIEGELUNG UBERBRUCKT IST NICHT DEM STRAHL AUSSETZEN!
VARNING - OSYNLIG LASERSTRÅLNING NAR DENNA DEL AR OPPNAD OCH SPARR AR URKOPPLAD. STRÅLEN AR FARLIG.
ADVARSEL - USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

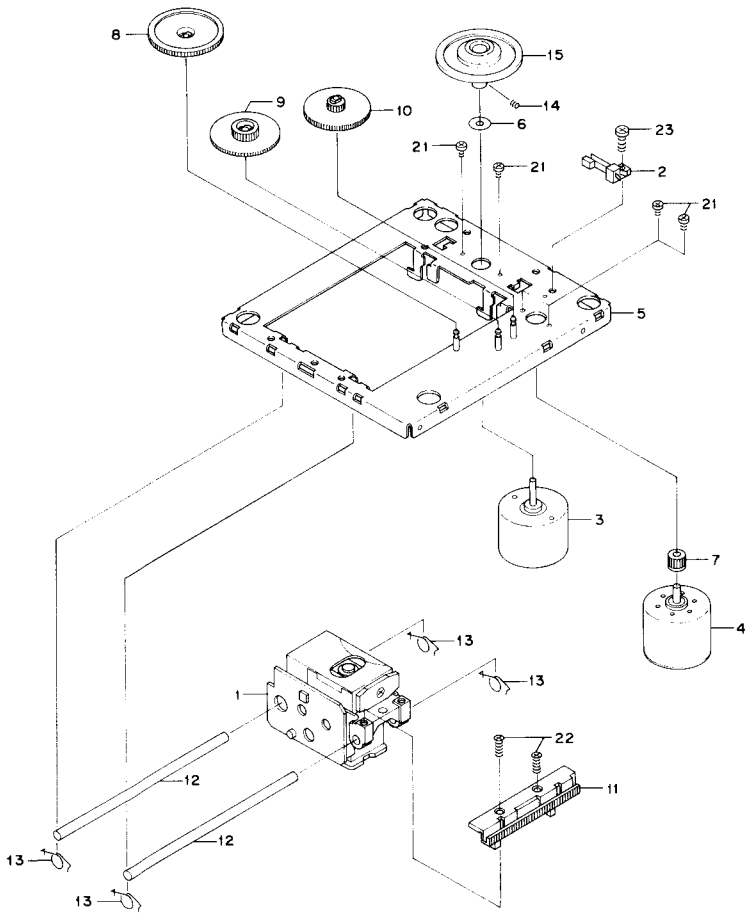
CAUTION – USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

LASER BEAM RADIATION SPOT



Laser Diode Properties
Material : Ga-Al-As
Wavelength : 755 – 815 nm (25°C)
Laser Output : Continuous Wave max. 0.5 mW

CD MECHANISM EXPLODED VIEW



CD MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
CD MECHANISM			
1	620 062 6194	Pick-up Assy 88	1
2	620 015 8633	Leaf Switch (Pick-up Limit) [SW7]	1
3	620 030 4290	Spindle Motor (DISC) [M2]	1
4	620 190 1702	Motor (SLED) [M1]	1
5	620 183 4819	Chassis Assy	1
6	620 125 1487	Washer	1
7	620 127 7814	Gear Motor	1
8	620 127 9542	Gear Pinion	1
9	620 127 9559	Gear Load B	1
10	620 127 9566	Gear Load S	1
11	620 127 9573	Gear Rack	1
12	620 133 4159	Shaft Pick-up	2
13	620 196 2697	Spring, Torsion	4
14	620 123 0116	Set Screw V-Cone 2X4	1
15	620 082 7478	Turntable Assy	1
21	411 019 9302	SCR PAN PCS 1.7X2.5	4
22	411 129 0800	SCR FLT PCS 2X5	2
23	411 107 6404	SCR S-TPG PAN 2.6X6	1

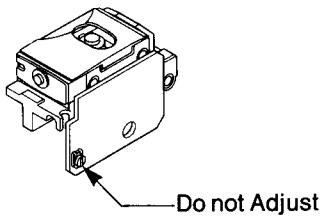
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

ADJUSTMENT PROCEDURES

PRECAUTIONS REGARDING ADJUSTMENT

- Adjustment is performed in the indicated order.
- When adjustment is mode for one item, check the other items which follow.
- The laser pick-up has already been precisely adjusted. Do not touch its mounting screws controls.



- Refer to the schematic diagram and printed circuit board.
- The ground point for the measurement equipment is the test point indicated as **GND**.

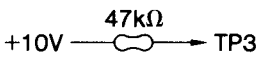
REQUIRED EQUIPMENTS

- DC Voltmeter
- Dualtrace Oscilloscope
- Frequency Counter
- Signal Generator
- Plastic Screwdriver
- Diffraction Grating Adjustment Jig
- Test Disc (SONY:YEDS4)

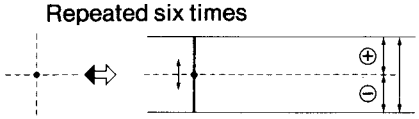
CHECKING FOCUS ERROR SIGNAL

Checking the focus error signal of the pick-up allows for an evaluation of the pick-up. Be sure this is carried out before repair.

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect an oscilloscope between test pin **FE** of connector CN15 and test pin **GND**. (Set the time axis to 0.5 seconds/division.)
3. Connect the +10V supply voltage to test pin **TP3** through a 47kΩ resistor.

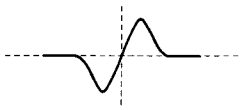


4. Press the EJECT 1 button and place the test disc YEDS4 on the table load. Press the PLAY button.
5. The waveform shown below is displayed six times on the oscilloscope. Check that the p-p voltage is about 8V and that the top and bottom of the waveform are symmetrical.



(When recorded on a memory scope)

6. This allows for confirmation to be made. The pick-up is faulty if confirmation cannot be made.



* p-p voltage of 8V
* + and – voltage roughly same

SETTING OF INITIAL POSITION OF VOLUME

1. The variable resistors are set to the following initial positions.

P101 (E-F BALANCE)	Mechanical Center
P102 (FOCUS GAIN)	Mechanical Center
P103 (TRACKING GAIN)	Mechanical Center
P104 (KICK GAIN)	Mechanical Center
P105 (FOCUS OFFSET)	Mechanical Center
P106 (TRACKING OFFSET)	Mechanical Center

FREE RUN FREQUENCY ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect the frequency counter between test pin **VCO** of connector CN16 and test pin **GND** (use probes).
3. Rotate the core of the PLL OSC coil (T102) with a plastic screwdriver so that the frequency counter indicates 4.3218MHz±10kHz.

FOCUS OFFSET ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect a DC Voltmeter and oscilloscope between test pin **FC** of connector CN14 and test pin **GND**.
3. Adjust P105 so that the indication on the DC Voltmeter and oscilloscope is 0V±10mV.

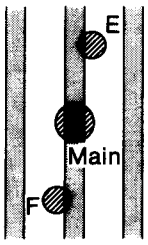
TRACKING OFFSET ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect a DC Voltmeter and oscilloscope between test point **TC** of connector CN14 and test pin **GND**.
3. Adjust P106 so that the indication on the DC Voltmeter and oscilloscope is 50mV±50mV.

NOTE:
This adjustment should be mode again after the adjustment of Tracking Gain.

ADJUSTMENT OF DIFFRACTION GRID

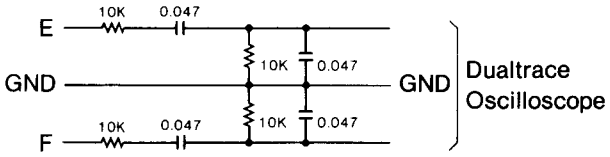
This unit uses a three beam method for the laser pick-up. Diffraction grid adjustment involves adjusting the position of the E and F beams in relation to the main beam so that they are in the same line.



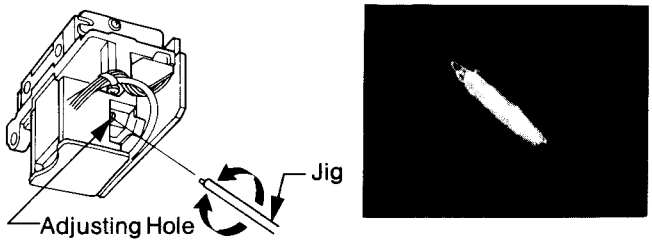
The following is the adjustment procedure. This is a precise adjustment and must be made carefully.

1. Turn on the power switch, place test disc YEDS4 on the table load and set the unit to the STOP mode.
2. Short test pins **TEST1** and **GND** of connector CN16.
3. Short test pin **TP1** and test pin **GND**. Pass test pins **E** (TP13) and **F** (TP14) through the band pass filter, and connect to the channels of the dualtrace oscilloscope. The ground is obtained from test point **GND**.

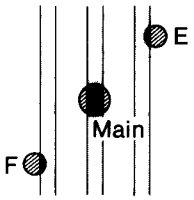
ADJUSTMENT PROCEDURES (Continued)



4. Press the F FWD button. The TRACK No. indication is "2" and the disc begins to rotate. Continue to press the PLAY button. The unit is rotating in this state with the tracking servo turned off.
5. Observe the resurge waveform of the waveform indicated on the oscilloscope and insert the adjustment jig into the diffraction grid holes to adjust the diffraction grid so that the phase difference is 180°.



6. Even if the phase difference is 180° in the above step, the E and F beams may be mistakenly on two different beam pit lines as shown below.



Be sure that the E and F beams are in the same pit line for subsequent adjustments.

7. Remove the short between test pin **TP1** and **GND**, and **TEST 1** and **GND**, and play back the fourth selection on YEDS4.
8. Observe the waveform of the signal between test pin **E** and test pin **F** using the dualtrace oscilloscope (Monitored in ALT mode). The beam **E** and beam **F** are in the same pit line if the trigger of waveform **F** is approximately 30μs behind the point (Position where waveform hollows out) where the waveform **E** is triggered.

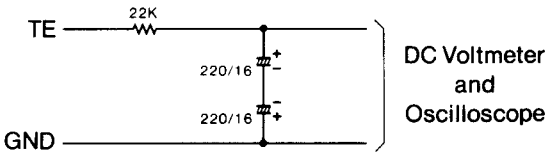
The two beam are on the same pit line.
(100mV/DIV : 5μSec/DIV)

When observation of the waveform is difficult, the trigger level can be varied. When the beams are not in the same line, return to step 1, and rotate the adjustment jig at the 180° point. Confirm that the beams are in line at the 180° point. Repeat steps 1 to 7 until confirmation of this is possible.

Note:
When the pick-up is replaced, it is adjusted as a unit, and beams E and F can be brought in line and the phase made 180° by a slight adjustment. Slightly rotate the adjustment jig when making adjustment. If the beams come out of line, it is difficult to bring them back into the same pit line.

E-F BALANCE ADJUSTMENT

1. Turn on the power switch and mount test disc YEDS4 on the table load. Set the unit to the STOP mode.
2. Short test pins **TEST1** and **GND** of connector CN16.
3. Short test pin **TP1** and test pin **GND**, and connect a DC Voltmeter and oscilloscope to test pin **TE** of connector CN15 through the low-pass filter shown below.



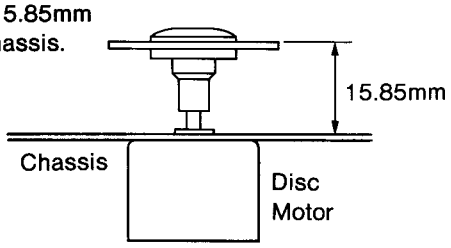
4. Press the F FWD button. The TRACK No. indication is "2" and the disc begins to rotate. Continue to press the PLAY button. The unit is rotating in this state with the tracking servo turned off.
5. Adjust P101 so that the DC Voltmeter and oscilloscope is 0V±15mV.

ADJUSTMENT PROCEDURES (Continued)

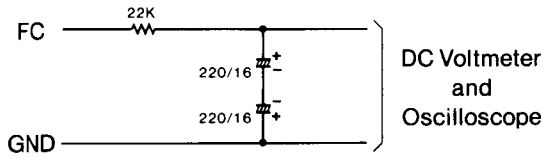
ADJUSTMENT OF TURNTABLE HEIGHT

This adjustment must be made when the motor is replaced.

1. Attach the turntable so that its top surface is 15.85mm from the top of the chassis.



2. Connect test pin **FC** of connector CN14 to a DC Voltmeter and oscilloscope through the low-pass filter.

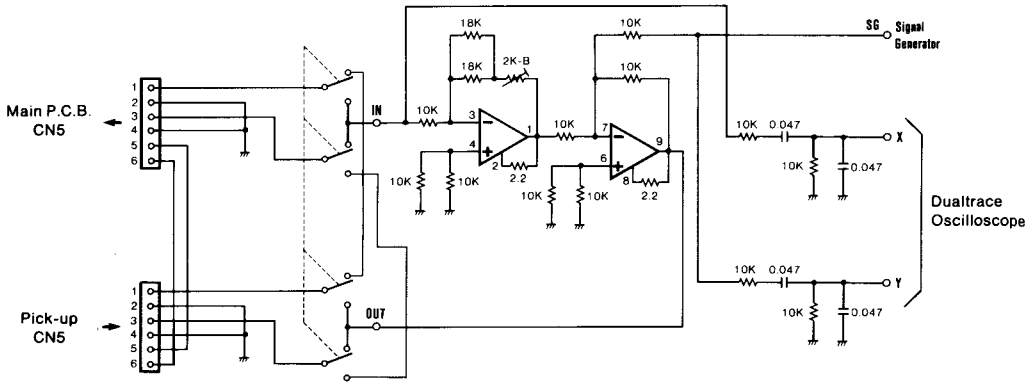


3. Turn on the power switch and playback the first selection on test disc YEDS4.
4. Readjust the height of the turntable if the reading on the DC Voltmeter is not in the range of 0V±0.25V. (Increase the height of the turntable when the DC Voltmeter reading is positive, and decrease it when negative.)

ADJUSTMENT OF FOCUS/TRACKING GAIN

The measurement circuit shown below is necessary for accurate adjustment of the focus and tracking gain. If this circuit cannot be made, make adjustments using the simplified procedure.

- Remove connector CN5 from the pick-up and connect the measurement circuit between the PCB and pick-up.
- The IC used is TA7256P.
- Volume control 2kΩ-B shorts **IN** and **SG**. 1kHz 1Vp-p is supplied from the signal generator, and adjustment is made for minimum output from **OUT**.

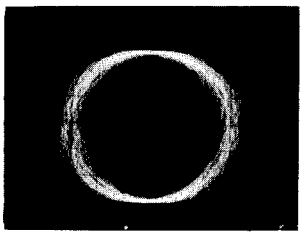


Simplified adjustment Procedure

- Focus gain adjustment
  P102 is set to a mechanical center.
- Tracking gain adjustment
  P103 is set to a mechanical center.

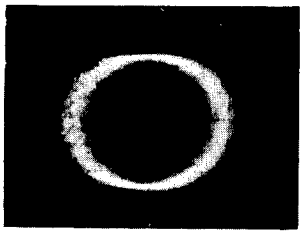
Precise adjustment procedure

- Focus gain adjustment



1. Connect the measurement circuit shown above, turn on the power switch, and mount the test disc YEDS4.
2. Playback the first selection on the test disc, and apply a 950Hz 0.5Vp-p signal from the signal generator.
3. Observe the resurge waveforms on the oscilloscope, and adjust P102 so that the phase difference of outputs **X** and **Y** from the measurement circuit is 90°.

- Tracking gain adjustment



1. Adjustment is made in the same manner as for focus gain. The input from the frequency generator is set to 1,300Hz, 0.5Vp-p, and P103 is adjusted so that the phase difference is 90°.

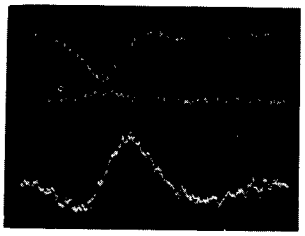
ADJUSTMENT PROCEDURES (Continued)

ADJUSTMENT OF KICK GAIN

1. Load the test disc YEDS4 on the turntable.
2. Set the oscilloscope at the NORMAL TRIG. and connect the **TRHD** of connector CN16 to the external trigger terminal. Then, connect the channels, 1 and 2, to the test pin, **HF** and **TE**, respectively.
3. Switch on the power. In the start of playing the first tune, make it pause and observe the waveforms of **HF** and **TE** triggered by **TRHD**.
4. Adjust the P104 for making a track jump between 1 and 1.5 track.

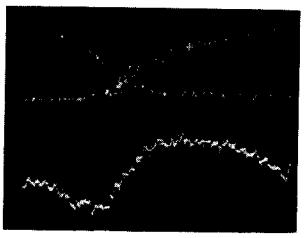
HF (1V/DIV, 50μSec/DIV)

TE (0.5V/DIV, 50μSec/DIV)



HF (1V/DIV, 50μSec/DIV)

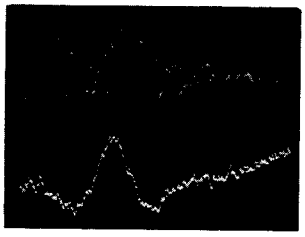
TE (0.5V/DIV, 50μSec/DIV)



Waveform showing short Kick Gain

HF (1V/DIV, 50μSec/DIV)

TE (0.5V/DIV, 50μSec/DIV)



Waveform showing Excessive Kick Gain

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
POWER P.C.B. ASSY			
41	620 192 6484	Power P.C.B. Assy	1
	620 022 2587	EC Terminal 1P	2
	620 031 4763	Wire Wrap Terminal	2
	⚠ 620 006 6679	Capacitor 0.01MF400V	1
SW601	⚠ 620 015 2358	Power Switch	1
MAIN P.C.B. ASSY			
42	620 192 7252	Main P.C.B. Assy	1
	620 017 2721	Fuse Clip	4
	⚠ 423 005 0507	FUSE 250V T1A	2
	411 020 7700	SCR S-TPG BRZ 3X6	1
	620 031 4763	Wire Wrap Terminal	9
	620 053 9258	Plate Heat Sink	1
	620 055 0925	Label Fuse T1AX2	1
	620 118 2088	Plate Earth	1
CN1	620 017 5067	Socket 13P	1
CN2	620 017 5050	Socket 6P	1
CN3	620 017 5043	Socket 7P	1
CN4	620 021 8405	Plug 8P	1
CN5	620 021 8337	Plug 6P	1
CN6	620 021 5954	Plug 6P	1
CN7	620 021 1970	Plug 2P	1
CN8	620 021 5930	Plug 4P	1
CN9	620 021 5947	Plug 5P	1
CN10	620 021 8610	Plug 6P	1
CN11	620 021 5923	Plug 3P	1
CN13	620 021 8344	Plug 10P	1
CN14	620 021 4025	Plug 3P	1
CN15	620 021 4346	Plug 4P	1
CN16	620 021 4391	Plug 8P	1
CN17	620 021 4025	Plug 3P	1
CN19	620 021 7163	Plug 3P	1
CN20	620 021 6555	Plug 4P	1
CN21	620 021 5923	Plug 3P	1
CN22	620 021 5923	Plug 3P	1
JK101	620 020 4743	Pin Jack 2P	1
or	620 017 2356	Pin Jack 2P	1
L102	620 197 9336	Inductor 100UH K	1
P101	620 006 2343	Potentiometer 100KB	1
P102	620 006 1940	Potentiometer 10KB	1
P103	620 006 1940	Potentiometer 10KB	1
P104	620 006 2862	Potentiometer 500KB	1
P105	620 006 1353	Potentiometer 100KB	1
or	620 006 1933	Potentiometer 100KB	1
P106	620 006 1360	Potentiometer 22KB	1
or	620 006 1957	Potentiometer 20KB	1
T101	620 026 8752	RF Low Pass Filter	1
or	620 026 8769	RF Filter	1
or	620 026 8745	RF Filter	1
T102	620 028 8774	OSC Coil	1
or	620 028 8699	OSC Coil	1
T103	620 026 4624	AF Filter	1
T104	620 026 4624	AF Filter	1
X101	620 007 3332	Crystal	1
or	620 007 3387	Crystal 8.6436MHz	1
or	620 007 2939	Crystal	1
or	620 182 6999	Crystal 8.6436MHz	1
or	620 007 3172	Crystal 8.6436MHz	1
IC101	409 004 8300	IC CX20109	1
IC102	409 018 5500	IC LA6510	1
or	409 071 4403	IC TA7256P	1
IC103	409 018 4206	IC LA6393S	1
or	409 039 6401	IC NJM2903S	1
or	409 049 4305	IC TA75393S	1
IC104	409 057 4601	IC UPC4570HA	1
IC105	409 057 4601	IC UPC4570HA	1
IC106	409 065 8400	IC YM3805	1
IC107	409 020 6205	IC LC3517AM-15	1
or	409 072 0008	IC TC5517BF-20	1
or	409 059 6702	IC UPD446G-20	1
or	409 004 5903	IC CXK5816M-15L	1
or	409 012 5209	IC HM6116FP-4	1
or	409 072 5003	IC TMM2116BF	1
IC108	409 065 8301	IC YM3015	1
IC109	409 057 4403	IC UPC4570C	1
or	409 018 5203	IC LA6462D	1
IC110	409 057 4403	IC UPC4570C	1
or	409 018 5203	IC LA6462D	1

Ref. No.	Part No.	Description	Q'ty
IC111	409 057 4403	IC UPC4570C	1
or	409 018 5203	IC LA6462D	1
IC112	409 018 5500	IC LA6510	1
or	409 071 4403	IC TA7256P	1
IC113	409 022 0805	IC LC74HCU04	1
or	409 052 1407	IC TC74HCU04P	1
or	409 072 9506	IC UPD74HCU04C	1
or	409 110 4807	IC NJU74HCU04D	1
IC114	409 074 2208	IC NJM79M06A	1
or	409 118 0108	IC NJM79M06FA	1
or	409 074 0204	IC AN79M06	1
or	409 074 0303	IC AN79M06F	1
or	409 074 2000	IC NJM7906A	1
or	409 074 2109	IC NJM7906FA	1
IC115	409 050 0501	IC TA78L006AP	1
Q101	405 024 9907	TR 2SD734-F	1
or	405 025 0200	TR 2SD734-G	1
or	405 024 9709	TR 2SD734-E	1
Q102	405 004 4502	TR 2SA608-F-NP-AA	1
Q103	405 004 4502	TR 2SA608-F-NP	1
or	405 004 5004	TR 2SA608-G-NP	1
Q104	405 033 7000	TR 2SD1676	1
Q105	405 033 7000	TR 2SD1676	1
Q106	405 033 5006	TR 2SD1227-M	1
Q108	405 033 5006	TR 2SD1227-M	1
Q109	405 033 5006	TR 2SD1227-M	1
Q111	405 032 3102	TR 2SB911-M	1
Q112	405 032 3102	TR 2SB911-M	1
Q113	405 032 3102	TR 2SB911-M	1
Q114	405 019 2708	TR 2SC536-F-NP-AA	1
or	405 019 3804	TR 2SC536-G-NP-AA	1
Q115	405 019 2708	TR 2SC536-F-NP-AA	1
or	405 019 3804	TR 2SC536-G-NP-AA	1
Q116	405 004 4502	TR 2SA608-F-NP	1
or	405 004 5004	TR 2SA608-G-NP	1
Q117	405 004 4502	TR 2SA608-F-NP-AA	1
Q118	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q119	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q120	405 019 2708	TR 2SC536-F-NP-AA	1
or	405 019 3804	TR 2SC536-G-NP-AA	1
Q121	405 019 2708	TR 2SC536-F-NP-AA	1
or	405 019 3804	TR 2SC536-G-NP-AA	1
Q122	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q123	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q124	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q125	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q126	405 021 0600	TR 2SD1012-G-SPA-AC	1
or	405 021 0907	TR 2SD1012-H-SPA-AC	1
Q127	405 004 4502	TR 2SA608-F-NP-AA	1
Q128	405 018 2600	TR 2SC3400	1
Q129	405 023 3005	TR 2SD330-E	1
or	405 023 3104	TR 2SD330-F	1
or	405 023 2305	TR 2SD325-E	1
or	405 023 2602	TR 2SD325-F	1
Q130	405 024 9907	TR 2SD734-F	1
or	405 025 0200	TR 2SD734-G	1
Q131	405 035 8005	TR UN411-D	1
Q132	405 018 2600	TR 2SC3400	1
Q133	405 035 8104	TR UN421-D	1
Q134	405 018 2600	TR 2SC3400	1
Q135	405 004 4502	TR 2SA608-F-NP-AA	1
D101	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D102	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D103	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D104	407 005 3805	DIODE DS442-BT	1
D105	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D106	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D107	407 061 2200	DIODE 1SS254-TA	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
or	407 007 9904	DIODE GMA01-BT	1
D108	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D109	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D110	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D111	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D112	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D113	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D114	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D115	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D116	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D117	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D118	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D120	407 005 3805	DIODE DS442-BT	1
D121	407 000 3503	VARACTOR DI SVC211SP	1
D126	407 061 1500	DIODE 1SR35	1
D127	407 061 1500	DIODE 1SR35	1
D128	407 061 1500	DIODE 1SR35	1
D129	407 061 1500	DIODE 1SR35	1
D130	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D131	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D132	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D133	407 049 9504	ZENER DIODE GZA20Y	1
D134	407 050 4802	ZENER DIODE GZA5.1Y	1
D135	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D136	407 050 7704	ZENER DIODE GZA9.1Y	1
D137	407 050 7704	ZENER DIODE GZA9.1Y	1
D141	407 050 6301	ZENER DIODE GZA6.2Z	1
or	407 053 7602	ZENER DIODE MTZ6.8B	1
D142	407 050 6301	ZENER DIODE GZA6.2Z	1
or	407 053 7602	ZENER DIODE MTZ6.8B	1
D143	407 050 6707	ZENER DIODE GZA6.8Z	1
C101	403 057 0908	POLYESTER 0.01U K 50V	1
C102	403 026 5408	CERAMIC 47P K 50V	1
C103	403 026 5408	CERAMIC 47P K 50V	1
C104	403 072 2703	CERAMIC 0.022U Z 50V	1
C105	403 039 2906	ELECT 47U M 6.3V	1
C106	403 050 7706	ELECT 3.3U M 50V	1
C107	403 067 7201	MT-COMPO 0.033U J 50V	1
C108	403 048 7602	ELECT 0.47U M 50V	1
C109	403 031 0306	CERAMIC 68P K 50V	1
C110	403 031 0306	CERAMIC 68P K 50V	1
C111	403 038 2303	ELECT 100U M 6.3V	1
C112	403 038 2303	ELECT 100U M 6.3V	1
C113	403 069 8404	CERAMIC 0.01U Z 50V	1
C114	403 067 5603	MT-COMPO 0.1U J 50V	1
C115	403 009 8105	CERAMIC 100P K 50V	1
C116	403 067 7706	MT-COMPO 0.047U J 50V	1
C117	403 026 8201	CERAMIC 470P K 50V	1
C118	403 158 3501	NP-ELECT 0.47U M 50V	1
or	403 086 1907	NP-ELECT 0.47U M 50V	1
C119	403 158 3600	NP-ELECT 4.7U M 16V	1
or	403 085 6408	NP-ELECT 4.7U M 16V	1
C120	403 026 9406	CERAMIC 5P C 50V	1
C121	403 042 3501	ELECT 100U M 16V	1
C122	403 042 3501	ELECT 100U M 16V	1
C123	403 057 0908	POLYESTER 0.01U K 50V	1
C124	403 038 9302	ELECT 33U M 6.3V	1
C125	403 038 2303	ELECT 100U M 6.3V	1
C126	403 038 2303	ELECT 100U M 6.3V	1
C127	403 057 8003	POLYESTER 0.012U K 50V	1
C128	403 057 8003	POLYESTER 0.012U K 50V	1
C129	403 059 4102	POLYESTER 2200P K 50V	1
C130	403 059 4102	POLYESTER 2200P K 50V	1
C131	403 159 7201	NP-ELECT 1U M 50V	1

Ref. No.	Part No.	Description	Q'ty
or	403 086 2706	NP-ELECT 1U M 50V	1
C132	403 038 7209	ELECT 220U M 6.3V	1
C133	403 050 1209	ELECT 2.2U M 50V	1
C134	403 026 9406	CERAMIC 5P C 50V	1
C135	403 038 2303	ELECT 100U M 6.3V	1
C136	403 042 3501	ELECT 100U M 16V	1
C137	403 042 3501	ELECT 100U M 16V	1
C138	403 159 7201	NP-ELECT 1U M 50V	1
or	403 086 2706	NP-ELECT 1U M 50V	1
C139	403 159 7201	NP-ELECT 1U M 50V	1
or	403 086 2706	NP-ELECT 1U M 50V	1
C140	403 002 3602	CERAMIC 0.1U K 25V	1
C141	403 002 3602	CERAMIC 0.1U K 25V	1
C142	403 072 2703	CERAMIC 0.022U Z 50V	1
C143	403 072 2703	CERAMIC 0.022U Z 50V	1
C144	403 039 2906	ELECT 47U M 6.3V	1
C145	403 072 2703	CERAMIC 0.022U Z 50V	1
C146	403 038 2303	ELECT 100U M 6.3V	1
C147	403 074 2701	CERAMIC 0.047U Z 50V	1
C148	403 057 0908	POLYESTER 0.01U K 50V	1
C149	403 087 2507	STYRENE 1000P J 50V	1
C150	403 060 6607	POLYESTER 3300P K 50V	1
C151	403 018 8509	CERAMIC 220P K 50V	1
C152	403 026 8201	CERAMIC 470P K 50V	1
C153	403 039 2906	ELECT 47U M 6.3V	1
C154	403 039 2906	ELECT 47U M 6.3V	1
C155	403 022 0902	CERAMIC 30P J 50V	1
C156	403 022 0902	CERAMIC 30P J 50V	1
C157	403 041 5704	ELECT 470U M 10V	1
C158	403 002 3602	CERAMIC 0.1U K 25V	1
C159	403 042 0302	ELECT 10U M 16V	1
C160	403 031 0306	CERAMIC 68P K 50V	1
C161	403 060 1008	POLYESTER 2700P K 50V	1
C162	403 060 1008	POLYESTER 2700P K 50V	1
C163	403 067 7409	MT-COMPO 0.039U J 50V	1
C164	403 067 7409	MT-COMPO 0.039U J 50V	1
C165	403 051 2007	ELECT 4.7U M 50V	1
C166	403 051 2007	ELECT 4.7U M 50V	1
C167	403 057 6306	POLYESTER 1200P K 50V	1
C168	403 057 6306	POLYESTER 1200P K 50V	1
C169	403 038 2303	ELECT 100U M 6.3V	1
C170	403 010 1805	CERAMIC 1000P K 50V	1
C171	403 041 3304	ELECT 47U M 10V	1
C172	403 041 3304	ELECT 47U M 10V	1
C173	403 041 3304	ELECT 47U M 10V	1
C174	403 041 3304	ELECT 47U M 10V	1
C175	403 041 3304	ELECT 47U M 10V	1
C176	403 041 3304	ELECT 47U M 10V	1
C177	403 042 0302	ELECT 10U M 16V	1
or	403 042 0302	ELECT 10U M 16V	1
C178	403 158 3600	NP-ELECT 4.7U M 16V	1
or	403 085 6408	NP-ELECT 4.7U M 16V	1
C179	403 158 3600	NP-ELECT 4.7U M 16V	1
or	403 085 6408	NP-ELECT 4.7U M 16V	1
C180	403 056 8608	POLYESTER 1000P K 50V	1
C181	403 056 8608	POLYESTER 1000P K 50V	1
C182	403 040 4708	ELECT 220U M 10V	1
C183	403 042 0302	ELECT 10U M 16V	1
C184	403 038 2303	ELECT 100U M 6.3V	1
C185	403 038 2303	ELECT 100U M 6.3V	1
C186	403 038 2303	ELECT 100U M 6.3V	1
C187	403 072 2703	CERAMIC 0.022U Z 50V	1
C188	403 072 2703	CERAMIC 0.022U Z 50V	1
C189	403 038 2303	ELECT 100U M 6.3V	1
C190	403 040 4708	ELECT 220U M 10V	1
C191	403 072 2703	CERAMIC 0.022U Z 50V	1
C192	403 040 4708	ELECT 220U M 10V	1
C194	403 040 4708	ELECT 220U M 10V	1
C195	403 040 4708	ELECT 220U M 10V	1
C196	403 046 0605	ELECT 2200U M 25V	1
C197	403 046 0605	ELECT 2200U M 25V	1
C198	403 020 8108	CERAMIC 3P C 50V	1
C199	403 020 8108	CERAMIC 3P C 50V	1
C200	403 072 2703	CERAMIC 0.022U Z 50V	1
C201	403 072 2703	CERAMIC 0.022U Z 50V	1
C202	403 038 2303	ELECT 100U M 6.3V	1
C203	403 044 8207	ELECT 10U M 25V	1
C204	403 051 2007	ELECT 4.7U M 50V	1
C205	403 059 4102	POLYESTER 2200P K 50V	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
C206	403 067 5603	MT-COMPO	0.1U	J	50V	1
C207	403 023 5807	CERAMIC	330P	K	50V	1
C208	403 067 6709	MT-COMPO	0.22U	J	50V	1
C209	403 067 6709	MT-COMPO	0.22U	J	50V	1
C210	403 072 2703	CERAMIC	0.022U	Z	50V	1
C212	403 044 0201	ELECT	47U	M	16V	1
C213	403 047 4206	ELECT	47U	M	25V	1
C216	403 072 2703	CERAMIC	0.022U	Z	50V	1
C217	403 072 2703	CERAMIC	0.022U	Z	50V	1
C218	403 072 2703	CERAMIC	0.022U	Z	50V	1
C219	403 072 2703	CERAMIC	0.022U	Z	50V	1
C220	403 072 2703	CERAMIC	0.022U	Z	50V	1
C222	403 072 2703	CERAMIC	0.022U	Z	50V	1
C223	403 072 2703	CERAMIC	0.022U	Z	50V	1
C224	403 074 2701	CERAMIC	0.047U	Z	50V	1
C226	403 074 2701	CERAMIC	0.047U	Z	50V	1
C227	403 068 9105	CERAMIC	100P	K	50V	1
C228	403 068 9105	CERAMIC	100P	K	50V	1
C230	403 072 9603	CERAMIC	3300P	K	50V	1
C240	403 070 3900	CERAMIC	120P	K	50V	1
C250	403 070 3900	CERAMIC	120P	K	50V	1
C260	403 070 3900	CERAMIC	120P	K	50V	1
C270	403 070 3900	CERAMIC	120P	K	50V	1
C280	403 070 3900	CERAMIC	120P	K	50V	1
C300	403 086 2706	NP-ELECT	1U	M	50V	1
R101	401 026 9907	CARBON	4.7K	JA	1/6W	1
R102	401 027 5205	CARBON	680	JA	1/6W	1
R103	401 026 1307	CARBON	27K	JA	1/6W	1
R104	401 025 4903	CARBON	180K	JA	1/6W	1
R105	401 025 0905	CARBON	130K	JA	1/6W	1
R106	401 024 7004	CARBON	1K	JA	1/6W	1
R107	401 024 7707	CARBON	100K	JA	1/6W	1
R108	401 024 7707	CARBON	100K	JA	1/6W	1
R109	401 025 7805	CARBON	2.2K	JA	1/6W	1
R110	401 025 8703	CARBON	220K	JA	1/6W	1
R111	401 024 7400	CARBON	10K	JA	1/6W	1
R112	401 024 7400	CARBON	10K	JA	1/6W	1
R113	401 025 7805	CARBON	2.2K	JA	1/6W	1
R114	401 024 7707	CARBON	100K	JA	1/6W	1
R115	401 025 0004	CARBON	120K	JA	1/6W	1
R116	401 027 3201	CARBON	560K	JA	1/6W	1
R117	401 027 9005	CARBON	82K	JA	1/6W	1
R118	401 016 3809	CARBON	2.2K	JA	1/4W	1
R120	401 025 7805	CARBON	2.2K	JA	1/6W	1
R121	401 025 5405	CARBON	2.2	JA	1/6W	1
R122	401 025 8208	CARBON	22K	JA	1/6W	1
R123	401 016 4806	CARBON	22K	JA	1/4W	1
R124	401 027 0309	CARBON	47K	JA	1/6W	1
R125	401 026 1604	CARBON	270K	JA	1/6W	1
R126	401 025 1902	CARBON	15K	JA	1/6W	1
R127	401 012 7009	CARBON	10K	JA	1/4W	1
R128	401 027 2600	CARBON	5.6K	JA	1/6W	1
R129	401 025 8208	CARBON	22K	JA	1/6W	1
R130	401 025 8208	CARBON	22K	JA	1/6W	1
R131	401 024 9305	CARBON	1.2K	JA	1/6W	1
R133	401 020 3901	CARBON	470K	JA	1/4W	1
R134	401 020 2904	CARBON	47K	JA	1/4W	1
R135	401 027 5908	CARBON	68K	JA	1/6W	1
R136	401 025 4903	CARBON	180K	JA	1/6W	1
R137	401 026 4308	CARBON	3.3K	JA	1/6W	1
R138	401 025 4200	CARBON	1.8K	JA	1/6W	1
R139	401 020 2904	CARBON	47K	JA	1/4W	1
R140	401 025 8208	CARBON	22K	JA	1/6W	1
R141	401 025 8208	CARBON	22K	JA	1/6W	1
R142	401 025 1902	CARBON	15K	JA	1/6W	1
R143	401 025 1605	CARBON	1.5K	JA	1/6W	1
R144	401 024 8001	CARBON	1M	JA	1/6W	1
R145	401 024 7400	CARBON	10K	JA	1/6W	1
R146	401 024 7400	CARBON	10K	JA	1/6W	1
R147	401 012 7009	CARBON	10K	JA	1/4W	1
R148	401 024 7400	CARBON	10K	JA	1/6W	1
R149	401 027 0309	CARBON	47K	JA	1/6W	1
R150	401 025 8208	CARBON	22K	JA	1/6W	1
R151	401 025 8703	CARBON	220K	JA	1/6W	1
R152	401 013 6407	CARBON	12K	JA	1/4W	1
R153	401 016 4806	CARBON	22K	JA	1/4W	1
R154	401 025 8208	CARBON	22K	JA	1/6W	1
R155	401 016 4806	CARBON	22K	JA	1/4W	1
R156	401 025 8208	CARBON	22K	JA	1/6W	1

Ref. No.	Part No.	Description				Q'ty
R157	401 025 4606	CARBON	18K	JA	1/6W	1
R158	401 026 4605	CARBON	33K	JA	1/6W	1
R159	401 025 8703	CARBON	220K	JA	1/6W	1
R160	401 027 0507	CARBON	470K	JA	1/6W	1
R161	401 026 1307	CARBON	27K	JA	1/6W	1
R162	401 026 1307	CARBON	27K	JA	1/6W	1
R163	401 026 1604	CARBON	270K	JA	1/6W	1
R165	401 015 6504	CARBON	2.2	JA	1/4W	1
R166	401 026 1307	CARBON	27K	JA	1/6W	1
R167	401 026 1307	CARBON	27K	JA	1/6W	1
R168	401 025 7805	CARBON	2.2K	JA	1/6W	1
R169	401 027 3201	CARBON	560K	JA	1/6W	1
R170	401 027 3201	CARBON	560K	JA	1/6W	1
R171	401 027 3003	CARBON	56K	JA	1/6W	1
R172	401 012 8105	CARBON	100K	JA	1/4W	1
R173	401 012 8105	CARBON	100K	JA	1/4W	1
R174	401 025 0004	CARBON	120K	JA	1/6W	1
R175	401 025 8208	CARBON	22K	JA	1/6W	1
R176	401 025 8208	CARBON	22K	JA	1/6W	1
R177	401 027 0309	CARBON	47K	JA	1/6W	1
R178	401 027 0309	CARBON	47K	JA	1/6W	1
R179	401 025 8208	CARBON	22K	JA	1/6W	1
R180	401 024 7707	CARBON	100K	JA	1/6W	1
R181	401 024 7707	CARBON	100K	JA	1/6W	1
R182	401 024 7400	CARBON	10K	JA	1/6W	1
R183	401 024 7400	CARBON	10K	JA	1/6W	1
R184	401 024 7400	CARBON	10K	JA	1/6W	1
R185	401 025 7805	CARBON	2.2K	JA	1/6W	1
R186	401 024 7400	CARBON	10K	JA	1/6W	1
R187	401 024 7707	CARBON	100K	JA	1/6W	1
R188	401 052 1203	MT-FILM	91K	FA	1/4W	1
R189	401 052 1203	MT-FILM	91K	FA	1/4W	1
R190	401 013 7305	CARBON	120K	JA	1/4W	1
R191	401 013 7305	CARBON	120K	JA	1/4W	1
R192	401 053 4708	MT-FILM	6.8K	FA	1/6W	1
R193	401 053 4708	MT-FILM	6.8K	FA	1/6W	1
R194	401 027 5502	CARBON	6.8K	JA	1/6W	1
R195	401 027 5502	CARBON	6.8K	JA	1/6W	1
R196	401 025 5405	CARBON	2.2	JA	1/6W	1
R197	401 025 5405	CARBON	2.2	JA	1/6W	1
R198	401 052 9803	MT-FILM	180	FA	1/6W	1
R199	401 041 0309	MT-FILM	1.5	FA	1/4W	1
R200	401 025 3807	CARBON	180	JA	1/6W	1
R201	401 012 1106	CARBON	1.5	JA	1/4W	1
R202	401 043 9706	MT-FILM	1.8K	FA	1/4W	1
R203	401 025 4200	CARBON	1.8K	JA	1/6W	1
R204	401 024 6403	CARBON	10	JA	1/6W	1
R205	401 024 6403	CARBON	10	JA	1/6W	1
R206	401 024 7004	CARBON	1K	JA	1/6W	1
R207	401 026 4902	CARBON	330K	JA	1/6W	1
R208	401 025 8208	CARBON	22K	JA	1/6W	1
R209	401 025 8703	CARBON	220K	JA	1/6W	1
R210	401 024 7004	CARBON	1K	JA	1/6W	1
R211	401 026 4902	CARBON	330K	JA	1/6W	1
R212	401 025 8208	CARBON	22K	JA	1/6W	1
R213	401 025 8208	CARBON	22K	JA	1/6W	1
R214	401 025 8208	CARBON	22K	JA	1/6W	1
R215	401 025 8208	CARBON	22K	JA	1/6W	1
R216	401 025 8208	CARBON	22K	JA	1/6W	1
R217	401 025 8208	CARBON	22K	JA	1/6W	1
R218	401 025 8208	CARBON	22K	JA	1/6W	1
R221	401 025 8208	CARBON	22K	JA	1/6W	1
R222	401 025 8208	CARBON	22K	JA	1/6W	1
R223	401 024 7707	CARBON	100K	JA	1/6W	1
R224	401 024 7707	CARBON	100K	JA	1/6W	1
R225	401 025 2305	CARBON	150K	JA	1/6W	1
R226	401 025 8703	CARBON	220K	JA	1/6W	1
R227	401 024 7004	CARBON	1K	JA	1/6W	1
R228	401 024 8001	CARBON	1M	JA	1/6W	1
R229	401 025 8208	CARBON	22K	JA	1/6W	1
R230	401 025 7409	CARBON	220	JA	1/6W	1
R231	401 024 7707	CARBON	100K	JA	1/6W	1
R232	401 026 9907	CARBON	4.7K	JA	1/6W	1
R233	401 025 7805	CARBON	2.2K	JA	1/6W	1
R234	401 053 1301	MT-FILM	22K	FA	1/6W	1
R235	401 053 1301	MT-FILM	22K	FA	1/6W	1
R236	401 053 1301	MT-FILM	22K	FA	1/6W	1
R237	401 053 1301	MT-FILM	22K	FA	1/6W	1
R238	401 026 4308	CARBON	3.3K	JA	1/6W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R239	401 026 3707	CARBON 33 JA 1/6W	1
R240	401 013 5301	CARBON 1.2K JA 1/4W	1
R241	401 013 5301	CARBON 1.2K JA 1/4W	1
R242	401 025 8703	CARBON 220K JA 1/6W	1
R243	401 025 8703	CARBON 220K JA 1/6W	1
R244	401 026 6609	CARBON 390 JA 1/6W	1
R245	401 026 6609	CARBON 390 JA 1/6W	1
R246	401 026 4308	CARBON 3.3K JA 1/6W	1
R247	401 026 4308	CARBON 3.3K JA 1/6W	1
R248	401 024 7400	CARBON 10K JA 1/6W	1
R249	401 012 7009	CARBON 10K JA 1/4W	1
R250	401 014 5201	CARBON 15K JA 1/4W	1
R251	401 027 3003	CARBON 56K JA 1/6W	1
R252	401 027 3003	CARBON 56K JA 1/6W	1
R253	401 024 7004	CARBON 1K JA 1/6W	1
R254	401 024 7004	CARBON 1K JA 1/6W	1
R255	401 026 4605	CARBON 33K JA 1/6W	1
R256	401 026 4605	CARBON 33K JA 1/6W	1
R257	401 026 4605	CARBON 33K JA 1/6W	1
R258	401 026 4605	CARBON 33K JA 1/6W	1
R259	401 012 4503	CARBON 100 JA 1/4W	1
R260	401 012 4503	CARBON 100 JA 1/4W	1
R261	401 012 4503	CARBON 100 JA 1/4W	1
R262	401 012 4503	CARBON 100 JA 1/4W	1
R263	401 012 4503	CARBON 100 JA 1/4W	1
R264	401 012 4503	CARBON 100 JA 1/4W	1
R265	401 025 8208	CARBON 22K JA 1/6W	1
R266	401 016 4806	CARBON 22K JA 1/4W	1
R267	401 025 5405	CARBON 2.2 JA 1/6W	1
R268	401 025 5405	CARBON 2.2 JA 1/6W	1
R269	401 025 5405	CARBON 2.2 JA 1/6W	1
R270	401 025 8703	CARBON 220K JA 1/6W	1
R271	401 012 5708	CARBON 1K JA 1/4W	1
R272	401 018 2800	CARBON 330 JA 1/4W	1
R273	401 018 2800	CARBON 330 JA 1/4W	1
R274	401 016 3809	CARBON 2.2K JA 1/4W	1
R275	401 016 3809	CARBON 2.2K JA 1/4W	1
R276	401 025 7805	CARBON 2.2K JA 1/6W	1
R277	401 025 7805	CARBON 2.2K JA 1/6W	1
R278	401 024 7707	CARBON 100K JA 1/6W	1
R279	401 024 7707	CARBON 100K JA 1/6W	1
R282	401 024 7400	CARBON 10K JA 1/6W	1
R283	401 024 7400	CARBON 10K JA 1/6W	1
R284	401 024 7707	CARBON 100K JA 1/6W	1
R285	401 024 7707	CARBON 100K JA 1/6W	1
R286	401 025 8208	CARBON 22K JA 1/6W	1
R287	401 025 7409	CARBON 220 JA 1/6W	1
R288	401 027 0309	CARBON 47K JA 1/6W	1
R289	401 016 2604	CARBON 220 JA 1/4W	1
R290	401 018 2800	CARBON 330 JA 1/4W	1
R291	401 066 5105	OXIDE-MT 22 JB 2W	1
R292	402 016 5008	FUSIBLE RES 33 J- 1/2W	1
R293	401 100 0608	OXIDE-MT 68 JB 2W	1
R294	401 100 0608	OXIDE-MT 68 JB 2W	1
R295	401 025 8208	CARBON 22K JA 1/6W	1
R297	401 027 2303	CARBON 560 JA 1/6W	1
R298	401 025 8208	CARBON 22K JA 1/6W	1
R299	401 025 8208	CARBON 22K JA 1/6W	1
R300	402 016 5404	FUSIBLE RES 4.7 J- 1/2W	1
R301	402 016 5404	FUSIBLE RES 4.7 J- 1/2W	1
R302	401 022 1905	CARBON 680 JA 1/4W	1
R303	401 024 7707	CARBON 100K JA 1/6W	1
R304	401 012 4503	CARBON 100 JA 1/4W	1
CONTROL P.C.B. ASSY			
43	620 183 3713	Control P.C.B. Assy	1
	620 051 9496	Spacer (LED)	6
	620 185 4350	Spacer LED	5
	620 052 6197	Cushion	1
	620 114 9104	Sheet	1
CN1	620 022 0811	Plug 13P	1
CN2	620 022 0828	Plug 6P	1
CN3	620 022 0804	Plug 7P	1
CN13	620 017 5647	Connector 10P Assy	1
CN19	620 020 6631	Connector 3P Assy	1
FL901	620 004 3007	Digitron	1
R901	620 004 5490	Resistor 22KX8	1
SW901	620 016 7796	Tact Switch (EJECT 4)	1
SW902	620 016 7796	Tact Switch (EJECT 3)	1

Ref. No.	Part No.	Description	Q'ty
SW903	620 016 7796	Tact Switch (EJECT 2)	1
SW904	620 016 7796	Tact Switch (EJECT 1)	1
SW906	620 016 7796	Tact Switch (DISPLAY)	1
SW908	620 016 7789	Tact Switch (B. SCAN)	1
SW910	620 016 7789	Tact Switch (F. SCAN)	1
SW919	620 016 7796	Tact Switch (EJECT 5)	1
SW920	620 016 7789	Tact Switch (DISC NUMBER 1)	1
SW921	620 016 7789	Tact Switch (DISC NUMBER 2)	1
SW922	620 016 7789	Tact Switch (DISC NUMBER 3)	1
SW923	620 016 7789	Tact Switch (DISC NUMBER 4)	1
SW924	620 016 7789	Tact Switch (DISC NUMBER 5)	1
SW925	620 016 7796	Tact Switch (REPEAT)	1
SW926	620 016 7796	Tact Switch (RANDOM PLAY)	1
SW927	620 016 7796	Tact Switch (INTRO SCAN)	1
SW928	620 016 7796	Tact Switch (CLEAR)	1
SW929	620 016 7796	Tact Switch (CHECK)	1
SW930	620 016 7796	Tact Switch (MEMORY)	1
SW931	620 016 7789	Tact Switch (F FWD)	1
SW932	620 016 7789	Tact Switch (F BACK)	1
SW933	620 016 7789	Tact Switch (PAUSE)	1
SW934	620 016 7789	Tact Switch (PLAY)	1
SW935	620 016 7789	Tact Switch (STOP)	1
IC901	410 026 8407	IC UPD75206G-516	1
Q914	405 035 0207	TR DTC143-EF	1
Q915	405 035 0207	TR DTC143-EF	1
D901	407 027 7102	LED SLP-153B-01 (DISC NUMBER 5)	1
D902	407 027 7102	LED SLP-153B-01 (DISC NUMBER 4)	1
D903	407 027 7102	LED SLP-153B-01 (DISC NUMBER 3)	1
D904	407 027 7102	LED SLP-153B-01 (DISC NUMBER 2)	1
D905	407 027 7102	LED SLP-153B-01 (DISC NUMBER 1)	1
D906	407 062 9307	LED SLB-55VR3 (INTRO SCAN)	1
D907	407 062 9307	LED SLB-55VR3 (RANDOM PLAY)	1
D908	407 062 9307	LED SLB-55VR3 (REPEAT)	1
D909	407 062 9307	LED SLB-55VR3 (MEMORY)	1
D910	407 062 9307	LED SLB-55VR3 (PAUSE)	1
D911	407 062 9208	LED SLB-55MG3 (PLAY)	1
D912	407 005 3805	DIODE DS442-BT	1
D913	407 005 3805	DIODE DS442-BT	1
D914	407 005 3805	DIODE DS442-BT	1
D915	407 005 3805	DIODE DS442-BT	1
D916	407 005 3805	DIODE DS442-BT	1
D917	407 005 3805	DIODE DS442-BT	1
D918	407 005 3805	DIODE DS442-BT	1
D919	407 005 3805	DIODE DS442-BT	1
D920	407 005 3805	DIODE DS442-BT	1
D922	407 005 3805	DIODE DS442-BT	1
D923	407 005 3805	DIODE DS442-BT	1
D925	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D926	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D927	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D928	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D930	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D931	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D932	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
C901	403 074 2701	CERAMIC 0.047U Z 50V	1
C902	403 074 2701	CERAMIC 0.047U Z 50V	1
R902	401 025 8208	CARBON 22K JA 1/6W	1
R903	401 025 8208	CARBON 22K JA 1/6W	1
R904	401 025 8208	CARBON 22K JA 1/6W	1
R917	401 025 8208	CARBON 22K JA 1/6W	1
R918	401 025 8208	CARBON 22K JA 1/6W	1
R919	401 025 8208	CARBON 22K JA 1/6W	1
R920	401 025 8208	CARBON 22K JA 1/6W	1
R921	401 025 8208	CARBON 22K JA 1/6W	1
R922	401 024 7004	CARBON 1K JA 1/6W	1
R923	401 024 7004	CARBON 1K JA 1/6W	1
R924	401 012 5708	CARBON 1K JA 1/4W	1
R925	401 024 7004	CARBON 1K JA 1/6W	1
R926	401 012 5708	CARBON 1K JA 1/4W	1
R927	401 024 7004	CARBON 1K JA 1/6W	1
R928	401 012 5708	CARBON 1K JA 1/4W	1
R929	401 024 7004	CARBON 1K JA 1/6W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R930	401 012 5708	CARBON 1K JA 1/4W	1
R931	401 024 7004	CARBON 1K JA 1/6W	1
R932	401 012 5708	CARBON 1K JA 1/4W	1
R933	401 026 6609	CARBON 390 JA 1/6W	1
R934	401 027 5205	CARBON 680 JA 1/6W	1
R935	401 025 7805	CARBON 2.2K JA 1/6W	1
R936	401 025 7805	CARBON 2.2K JA 1/6W	1
LAMP-2 P.C.B. ASSY			
44	620 187 9995	Lamp-2 P.C.B. Assy	1
CN22	620 020 0745	Connector 3P Assy	1
L801	620 188 0854	Lamp	1
L802	620 188 0854	Lamp	1
LED P.C.B. ASSY			
51	620 079 3001	LED P.C.B. Assy	1
D502	407 063 2604	LED SLR-34VC3-N,P	1
R501	401 025 3807	CARBON 180 JA 1/6W	1
R503	401 025 3807	CARBON 180 JA 1/6W	1
R502	401 026 4605	CARBON 33K JA 1/6W	1
PHOTO TRANSISTOR P.C.B. ASSY			
52	620 079 3018	Photo Transistor P.C.B. Assy	1
Q501	407 063 5704	PHOTO DIODE TPS606	1
PHOTO SENSOR P.C.B. ASSY			
53	620 079 3025	Photo Sensor P.C.B. Assy	1
D501	407 060 9002	PHOTO COUPLE TLP802	1
LED 8CM P.C.B. ASSY			
54	620 187 7977	LED 8CM P.C.B. Assy	1
D503	407 108 1302	LED TLN104-B (SAN)	1
D504	407 108 1302	LED TLN104-B (SAN)	1
R504	401 015 1608	CARBON 180 JA 1/4W	1
R505	401 015 1608	CARBON 180 JA 1/4W	1
SENSOR 8CM P.C.B. ASSY			
55	620 187 7984	Sensor 8CM P.C.B. Assy	1
Q502	407 108 1401	PHOTO DIODE TPS606-C (SAN)	1

NOTES:

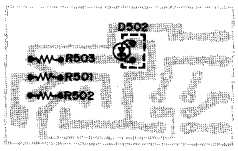
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

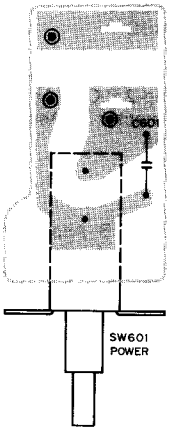
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

Ref. No.	Part No.	Description	Q'ty

LED P.C.BOARD
(BOTTOM VIEW)

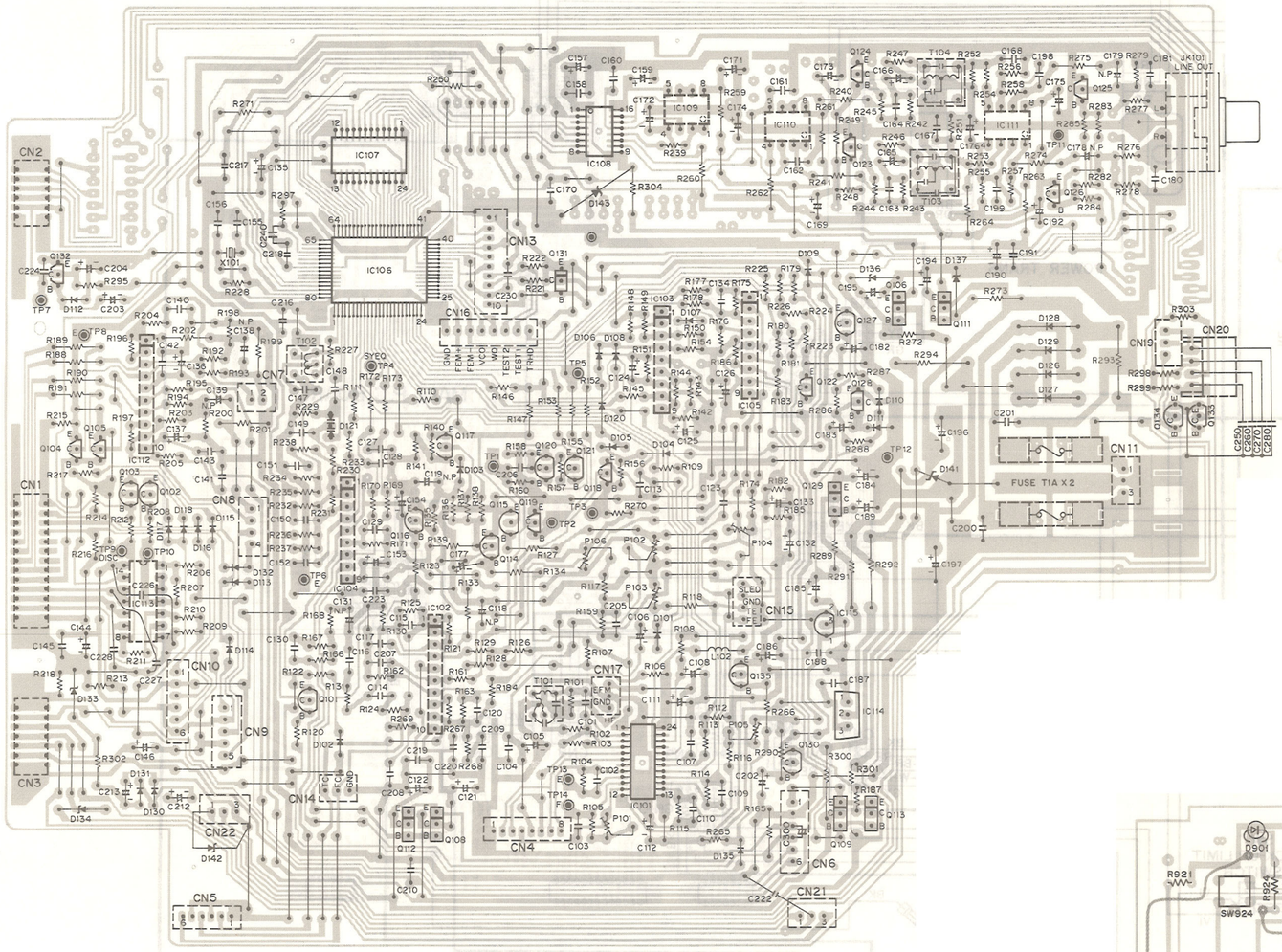


POWER P.C.BOARD
(BOTTOM VIEW)



LAMP P.C.BOARD
(BOTTOM VIEW)

MAIN P.C.BOARD
(BOTTOM VIEW)

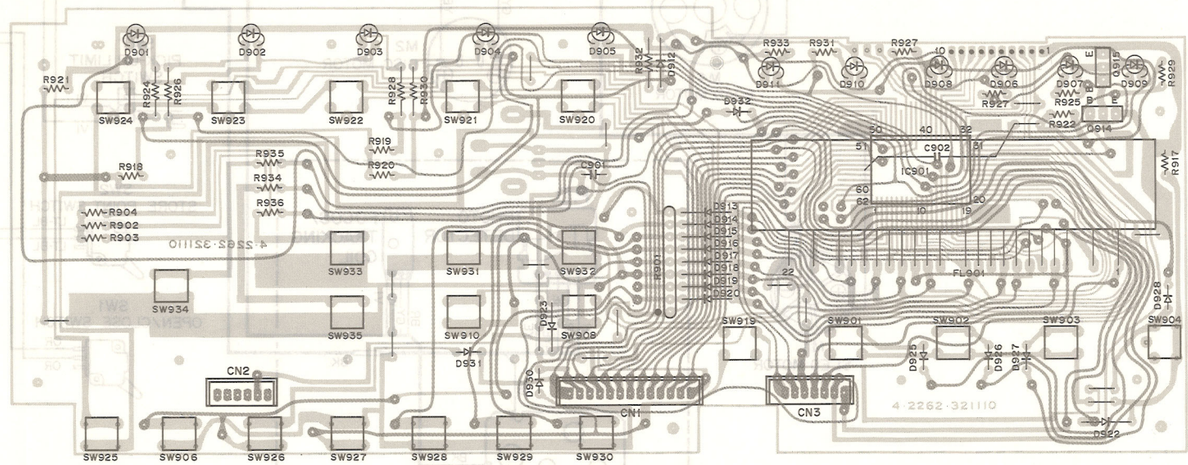


IC PIN NUMBERS DC VOLTAGES																				
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC101	CX20109	−5.6V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	−6.0V	0V	0V	0V	0V	0.4V	−3.0V	0V
		21	22	23	24																
		0V	0V	5.2V	5.9V																
IC102	LA6510	0V	0V	0V	0V	−14.4V	0V	0V	0V	0V	13.9V										
IC103	LA6393S	5.9V	−5.9V	1.6V	0V	−6.0V	0V	0V	5.1V	5.9V											
IC104	μPC4570HA	5.9V	2.6V	2.6V	2.6V	−6.0V	0V	0V	0.2V	5.9V											
IC105	μPC4570HA	5.9V	0V	0V	0V	−6.0V	0V	0V	0.5V	5.9V											
IC107	LC3517	2.5V	2.6V	2.5V	2.5V	2.5V	2.5V	2.5V	2.5V	4.3V	1.3V	3.9V	0V	4.5V	4.1V	1.1V	–	–	0V	–	3.0V
		21	22	23	24																
		4.8V	0V	0V	5.2V																
IC108	PCM56P	−8.7V	0V	6.4V	0V	2.1V	3.4V	0V	−7.7V	0V	0V	0V	0V	0V	−6.3V	−1.3V	8.7V				
IC109	TC4053BP	0V	0V	0V	0V	0V	0V	−8.6V	0V	1.7V	1.7V	0V	−8.6V	8.6V	−8.6V	0V	8.6V				
IC110	μPC4570C	0V	0V	0V	−7.3V	0V	0V	0V	7.3V												
IC111	μPC4570C	0V	0V	0V	−8.2V	0V	0V	0V	8.1V												
IC112	LA6510	0V	0V	0V	0V	−14.5V	0V	0V	0V	0V	13.9V										
IC113	μPD74HCU04C	5.2V	0V	0V	5.2V	5.1V	0V	0V	5.2V	0V	2.3V	2.6V	2.7V	2.2V	5.2V						

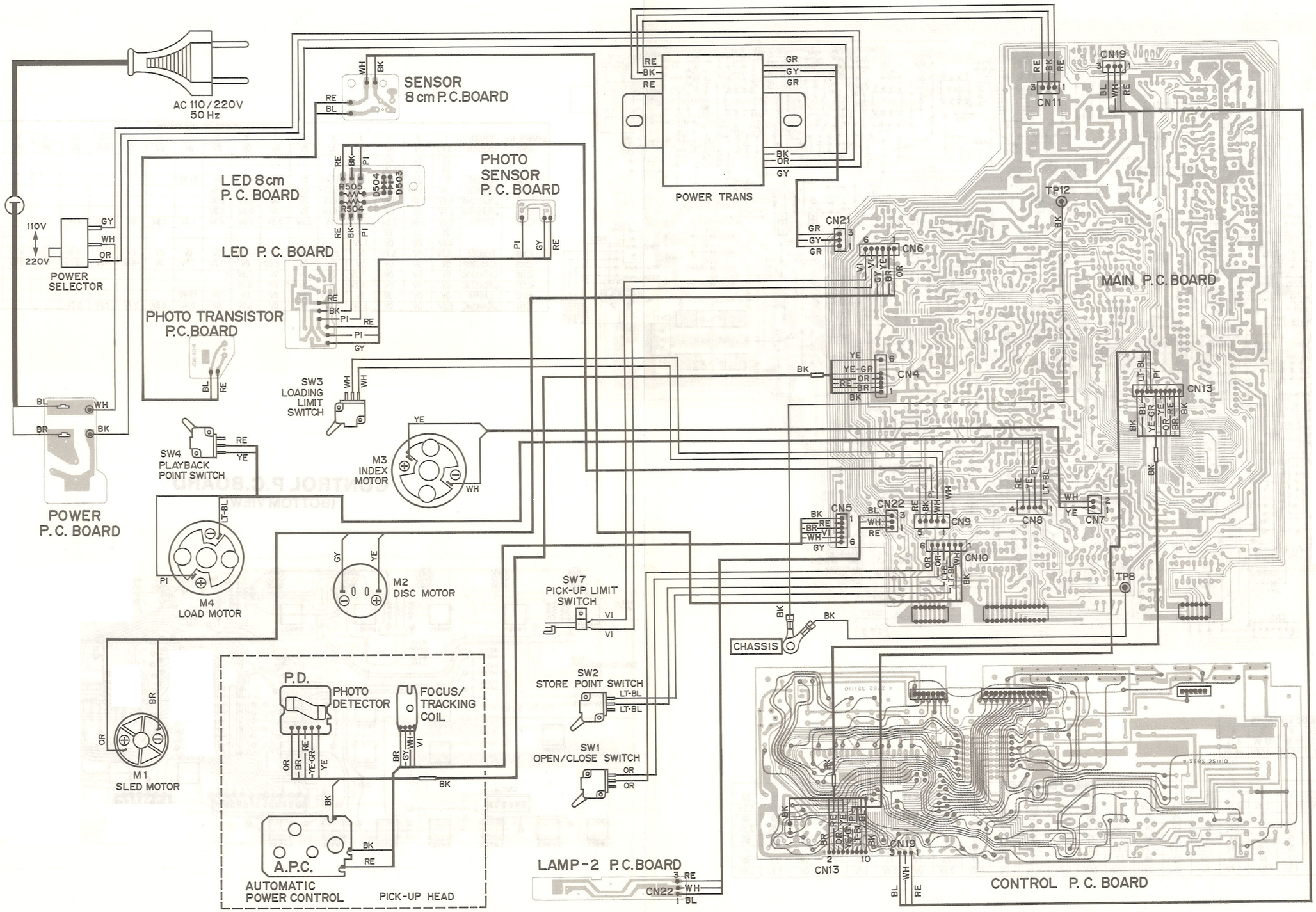
TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q106	2SD1227	9.3V	12.6V	8.7V
Q111	2SB911	−9.3V	−12.6V	−8.7V

IC PIN NUMBERS DC VOLTAGES																					
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC106	YM3815	5.2V	2.3V	2.3V	2.6V	0V	5.2V	0V	4.4V	0V	0V	0V	0V	0V	5.2V	0V	0.3V	5.2V	5.2V	0V	5.2V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0V	0V	5.2V	0V	0V	1.9V	1.3V	0.2V	0V	0.2V	5.2V	5.1V	1.7V	0V	0V	0V	0V	5.3V	2.5V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		0V	2.6V	2.5V	2.5V	2.6V	2.6V	2.6V	2.5V	2.6V	2.9V	4.8V	2.9V	–	–	–	–	–	–	–	–
		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
		4.3V	0V	3.4V	0V	0V	0V	2.5V	2.0V	5.2V	5.1V	0V	5.2V	3.5V	0V	5.1V	1.7V	1.1V	0V	2.3V	1.8V

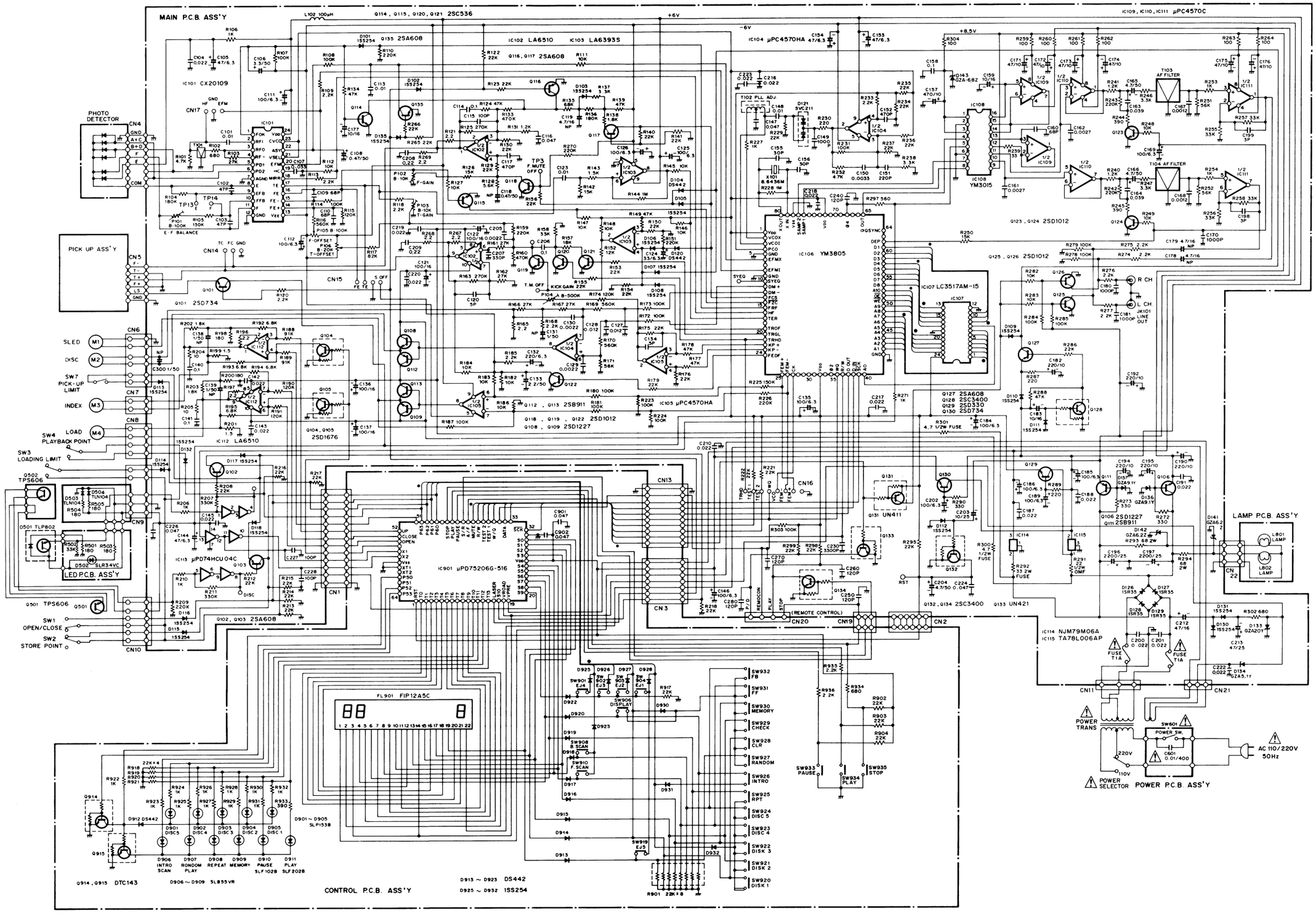
CONTROL P.C.BOARD
(BOTTOM VIEW)



POINT TO POINT WIRING DIAGRAM

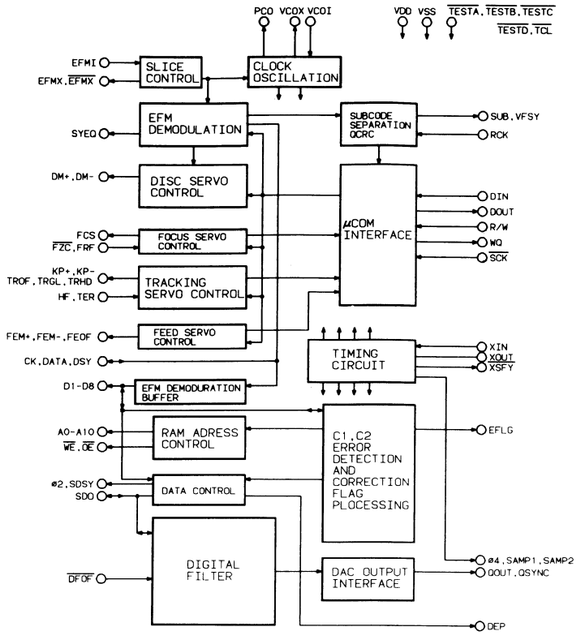


SCHEMATIC DIAGRAM

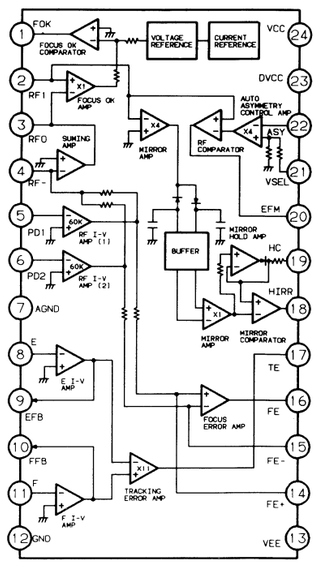


INTEGRATED CIRCUIT BLOCK DIAGRAM

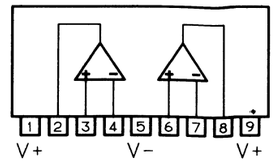
YM3805 BLOCK DIAGRAM



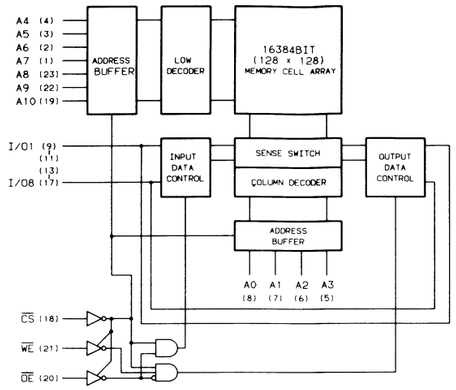
CX20109 BLOCK DIAGRAM



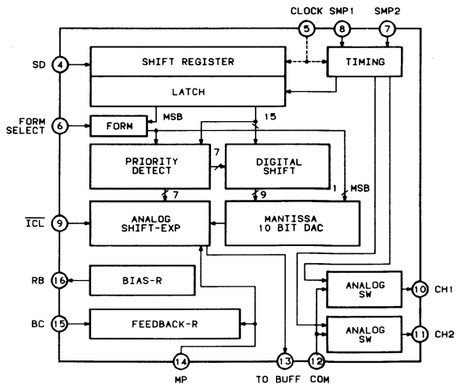
μPC4570HA/LA6393S BLOCK DIAGRAM



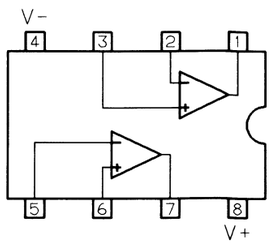
LC3517AM-15 BLOCK DIAGRAM



YM3015 BLOCK DIAGRAM

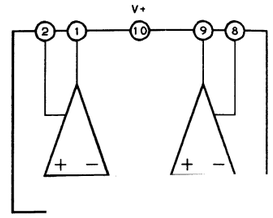


μPC4570C BLOCK DIAGRAM

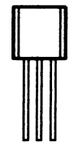
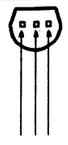
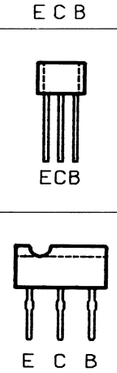
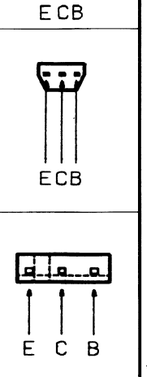


SEMICONDUCTOR LEAD IDENTIFICATION

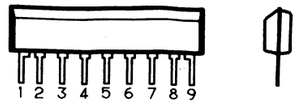
LA6510 BLOCK DIAGRAM



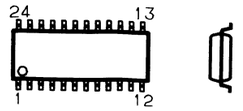
SANYO FISHER Vertriebs GmbH

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA608 2SC536 2SD734		
2SC3400 2SD1012		
DTA124 DTC143		
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

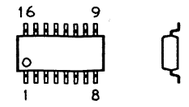
μPC4570HA TOP/SIDE VIEWS



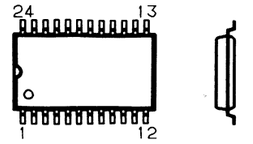
CX20109 TOP/SIDE VIEWS



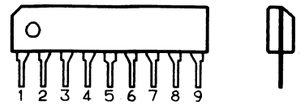
3015 TOP/SIDE VIEWS



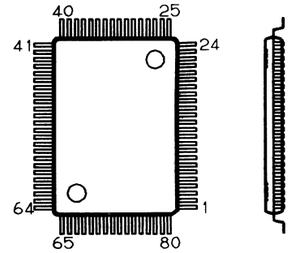
LC3517AM-15 TOP/SIDE VIEWS



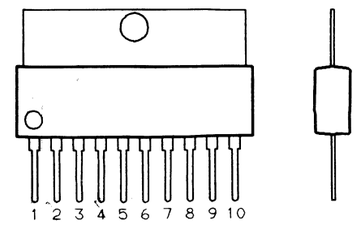
LA6393S FRONT/SIDE VIEWS



YM3805 TOP/SIDE VIEWS



LA6510 FRONT/SIDE VIEWS



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